

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Upon entry of the present amendment, the claims will stand as follows:

Please amend claims 1, 70 and 79 as follows:

1. (Currently Amended) A method of enhancing collateral blood vessel formation in a subject comprising directly administering to sites in or adjacent to ischemic heart muscle a composition comprising an effective amount of cells of autologous bone marrow aspirate that have been transfected with at least one vector comprising an effective amount of a gene that expresses HIF-1, EPAS-1, MCP-1, GM-CSF, or a combination thereof, to induce collateral blood vessel formation in the ischemic heart muscle.

Claims 2-6 (cancelled)

7. (Previously Presented) The method of Claim 1, wherein the cells of autologous bone marrow aspirate have been stimulated ex vivo by contact with at least one angiogenic cytokine.

Claims 8-10 (cancelled)

11. (Previously Presented) The method of Claim 1, wherein the vector is a plasmid vector or an adenoviral vector.

Claims 12-35 (cancelled)

36. (Previously Presented) A method of improving the electrical conductivity of the heart of a subject with cardiac electrical pathway impairment, which comprises directly administering an effective amount of autologous bone marrow aspirate to ischemic myocardium

of the subject to induce collateral blood vessel formation and improve electrical conductivity therein as compared with non-administration of the autologous bone marrow aspirate.

Claims 37-44 (cancelled)

45. (Previously Presented) The method of Claim 36, wherein the cells of autologous bone marrow have been transfected with at least one vector comprising an effective amount of a gene that expresses HIF-1, EPAS-1, MCP-1, GM-CSF, or a combination thereof.

46. (Original) The method of Claim 45, wherein the vector is a plasmid vector or an adenoviral vector.

Claims 47-52 (cancelled)

53. (Previously Presented) A method of enhancing myocardial function in a subject with impaired myocardial function, which comprises directly administering an effective amount of autologous bone marrow aspirate to myocardium of the subject to induce collateral blood vessel formation and improve function of the myocardium as compared with non-administration of the autologous bone marrow aspirate.

Claims 54-61 (cancelled)

62. (Previously Presented) The method of Claim 53, wherein cells of the autologous bone marrow aspirate have been transfected with at least one vector comprising an effective amount of a gene that expresses HIF-1, EPAS-1, MCP-1, GM-CSF, or a combination thereof.

63. (Original) The method of Claim 62, wherein the vector is a plasmid vector or an adenoviral vector.

Claims 64-69 (cancelled)

70. (Currently Amended) A method of improving atrial or ventricular function in heart muscle of a subject, which comprises directly administering an effective amount of autologous bone marrow aspirate to ischemic myocardium of the subject to enhance collateral blood vessel development in the heart muscle and to improve the atrial or ventricular function of the heart as compared with non-administration of the autologous bone marrow.

Claims 71-78 (cancelled)

79. (Currently Amended) The method of Claim 70, wherein cells of the autologous bone marrow have been transfected with at least one vector comprising an effective amount of a gene that expresses HIF₁, EPAS₁, MCP-1, GM-CSF, or a combination thereof.

80. (Original) The method of Claim 79, wherein the vector is a plasmid vector or an adenoviral vector.

Claims 81-102 (cancelled)